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1771

Atty. Docket No.: DEXNON/087/PC/US

In re patent of: Rui B. FERREIRA

Application No.: 09/341,635

Examiner:

N. L. Torres
VELAZQUEZ

Filing Date: 7/14/1999

Group Art Unit:

1771

For: Wet-Laid Nonwoven Web From Unpulped Natural Fibers And Composite Containing Same

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TRANSMITTAL FORM

Enclosed herewith is (are):

- Response to Office Action
- Post Card
- five (5) references

It is hereby petitioned that any required extension of time be granted for filing the enclosed papers. An extension of -0- month(s) having a fee of \$-0- appears required.

A check in the amount of \$-0- is enclosed. Please credit any overpayment to Deposit Account 16-2563 of Alix, Yale & Ristas, LLP.

The Commissioner is hereby requested and authorized to charge Deposit Account 16-2563 of Alix, Yale & Ristas, LLP for any fee, not enclosed herewith, due for any reason during the pendency of this application or in connection with the accompanying document, including (a) any filing fees under 37 CFR 1.16 for the presentation of extra claims and (b) any patent application processing fees under 37 CFR 1.17. A duplicate copy of this sheet is enclosed.

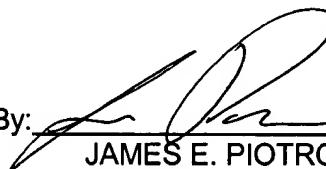
The undersigned hereby certifies that this correspondence is being deposited on the date below with the United States Postal Service as first class mail in an envelope addressed to "Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450".

Respectfully submitted,

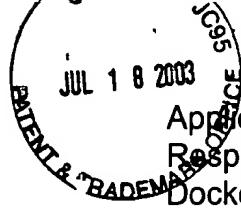
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Response to Office Communication of: 4/17/2003
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Applicant: Rui B. FERREIRA

Application No.: 09/341,635 Examiner: N. L. TORRES VELAZQUEZ

Filing Date: 7/14/1999 TC/A.U.: 1771

Title: Wet-Laid Nonwoven Web From Unpulped Natural Fibers . . .

Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Sir:

RESPONSE TO OFFICE ACTION

Applicants respectfully request reconsideration of the objections and rejections in the Office communication mailed on 4/17/2003 in view of the following remarks.

There are no amendments to the specification or claims.

REMARKS

No claims have been added, cancelled or amended. Claims 2-23 are pending in the application. Claims 11-17 are allowed. Claims 2-10 and 23 are rejected. Claims 18-22 were previously withdrawn under traverse.

The meaning of the word “fiber”.

The PULP & PAPER DICTIONARY, by John R. Lavigne (copy enclosed) defines fiber as, with bolding added: “An elongated, tapering, thick-walled cellular unit that is the structural component of woody plants. **Fibers are separated from each other during the pulping operation . . .**”

The Dictionary Of Paper, fourth edition (1980) (copy enclosed) defines fiber as, with bolding added: “A thread-like body or filament, many times longer than its diameter. **Paper pulps are composed of fibers, usually of vegetable origin, . . .**”

Thus, the terms “fiber” and “unpulped fiber bundle” are NOT the same. In fact, use of the term “fiber” specifically indicates a previous pulping operation to extract that “fiber” from a fiber bundle.

The words “pulping” and “beating” define different processes performed on different materials.

As discussed with the Examiner during a telephone conference on 1/23/2003, the claimed “fiber bundles” of the present claims are comprised of elementary fibers held together by natural binding agents such as lignin and hemicellulose. As also discussed at that telephone conference, pulping is an operation that starts with unpulped fiber bundles and strips away the binding agents to provide separated elementary fibers.

The Manufacture of Pulp and Paper: Science and Engineering Concepts published by the TAPPI Press (copy enclosed) at pages 73-76 (section 3.2 Pulping Processes) discusses pulping as the mechanical or chemical separation of fibers from lignin and other materials. Section 3.2 does NOT use the term beating in association with pulping. Section 3.4 is titled Refining. Page 91 of section 3.2 states, with bolding

added: "An important step in the papermaking process involves **beating**, or refining, of **pulp**." Thus, this disclosure equates beating with the processing of previously PULPED fibers. There is no disclosure that "beating" and "pulping" are synonymous or even similar operations.

Pulp Technology and Treatment for Paper, second edition by James d'A. Clark (copy enclosed) on page 189 states: "The ease with which a pulp may be beaten or refined . . ." This disclosure equates beating with the processing of previously PULPED fibers. There is no disclosure that "beating" and "pulping" are synonymous or even similar operations.

PULP AND PAPER Chemistry and Chemical Technology, third edition, volume II, James P. Casey editor (copy enclosed) at page 826 states, with bolding added:

Beating and refining can be defined as the mechanical treatment of pulp carried out in the presence of water usually by passing the suspension of pulp fibers through a relatively narrow gap between a revolving rotor and a stationary stator, both of which carry bars or knives aligned more or less across the line of flow of the stock. **The term "beating" is usually applied to the batch treatment of stock in a Hollander beater** or one of its modifications.

That page goes on to state, with bolding added: "Paper made from **unbeaten fibers** . . ."; ". . . but the **beating** and refining treatment is carried out on the fibers in suspension . . ."; ". . . it is, therefore, essential to examine the effect of **beating and refining on fibers** . . .". Pages 827-831 goes on to discuss the effect of beating on FIBER properties. This disclosure explicitly defines "beating" as "the mechanical treatment of pulp. There is no disclosure that "beating" and "pulping" are synonymous or even similar operations.

The Dictionary Of Paper, fourth edition (1980) defines beating as, with bolding added: "That portion of the **pulp** refining carried out in the beater." This reference in the definition of "beater" states: "the primary function of the beater is to initiate the development of the fiber." This disclosure equates beating with the processing of previously PULPED fibers. There is no disclosure that "beating" and "pulping" are

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synonymous or even similar operations.

The PULP & PAPER DICTIONARY, by John R. Lavigne defines beating as, with bolding added: "The process of mixing **pulps** . . . in a vat-like device called a beater." This disclosure equates beating with the processing of previously PULPED fibers. There is no disclosure that "beating" and "pulping" are synonymous or even similar operations.

In sum, "unpulped fiber bundles" are comprised of a plurality of fibers held together by natural binding agents. "Pulping" is an operation that takes unpulped fiber bundles and removes the natural binding agents to provide elementary or freed fibers. "Beating" is an operation performed on fibers that have been previously pulped and separated from fiber bundles to change the fibers morphology. This sequence of operations can be indicated as:

harvesting the plant to provide unpulped fiber bundles;

↓

pulping the fiber bundles to separate elementary fibers from the fiber bundles;

↓

beating or refining the elementary fibers to change the morphology of the elementary fiber

The rejection of claims 2-10 and 23 under 35 U.S.C. §103(a).

Claims 2-10 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,319,956 to Snyder et al in view of publication WO 94/02674 to Holm.

Claim 5 recites:

A wet-laid nonwoven web material comprising a predominant amount of unpulped long natural fiber bundles and a pulp fiber component, wherein the unpulped long natural fiber bundles are comprised of a plurality of elementary fibers substantially joined by natural binding agents.

Claims 2-4, 6-10 and 23 depend directly or indirectly from claim 5. Thus, each of the rejected claims requires that the web comprise “unpulped fiber bundles”.

The 4/17/2003 Office communication, in supporting the rejection of claims 2-10 and 23 states, with bracketed text added:

The [Snyder] reference teaches that some strength is imparted by the Kraft fibers (pulps), however, additional strength and absorbency is imparted in accordance with their invention by including long vegetable fibers and particularly extremely long natural unbeaten fibers (unpulped long natural fiber bundles) such as sisal, hemp, caroa, flax, jute and Indian hemp. (Column 4, lines 13-17) . . .

The Office communication goes on to assert: “While Snyder et al. teaches a wet-laid nonwoven web material comprising unpulped long natural fiber bundles . . .” In sum, the Office communication appears to equate the “long natural unbeaten fibers” of the Snyder reference with the long natural fiber bundles of the presently rejected claims. The assertion that “unbeaten” and “unpulped” are synonymous in meaning is, respectfully, wrong.

- The cited text of Snyder refers to “long natural unbeaten fibers”. As discussed above, fibers are the product of pulping fiber bundles. Thus the cited text explicitly refers only to fibers and NOT to unpulped fiber bundles.
- Column 4, lines 6-29 of Snyder states, with bolding added:

In addition to the conventional papermaking fibers of bleached Kraft and synthetic fibers such as rayon, the furnish of the present invention includes two different types of natural **fibers** that uniquely combine to provide the desired absorbency, bulk and other absorbent and wet properties sought in medical towels of the type described. As mentioned, some strength is imparted by the Kraft fibers, however, additional strength and absorbency is imparted in accordance with the present invention by including long vegetable **fibers** and particularly extremely long natural unbeaten **fibers** such as sisal, hemp, caroa, flax, jute and Indian hemp. These very long, natural **fibers** supplement the strength characteristics provided by the bleached Kraft and at the same time, provide a limited

degree of bulk and absorbency coupled with a natural toughness and burst strength. Accordingly, the long vegetable **fibers** may be deleted entirely or used in varying amounts up to, for example, about 25 percent by weight. Generally, the inclusion of such **fibers** is preferred but the total amount thereof is kept at about 20 percent in order to achieve the proper balance of desired properties in the end product.

As discussed above, fibers are the product of pulped fiber bundles. There is NO disclosure in this text of fiber bundles, only of elementary fibers.

- Example One at column 7, line 57 of Synder explicitly teaches that the “extremely long natural unbeaten fibers such as sisal” refers to “sisal **pulp**”, that is sisal fibers freed from the binding agents of the sisal fiber bundle. Examples Two, Three and Four each used the fibers of Example One, that is they used sisal pulp. There is no disclosure in the Snyder patent generally, or in the Examples specifically, of the use of fiber bundles.
- The cited text of the Snyder reference teaches “unbeaten fibers”. As discussed above, beating is an operation performed on previously pulped fibers. As also discussed above there is no support in the art for any contention that “unbeaten” means “unpulped”.

The reliance of the Office communication to the word “unbeaten” in the Snyder reference is, respectfully, misplaced. “Extremely long natural unbeaten fibers” disclosed in the Snyder reference are elementary fibers that have been pulped and separated from the fiber bundles but which have not been beaten or refined to change the morphology of the elementary fiber. Applicant’s interpretation is supported by the documents enclosed with this Response.

In summary, the art teaches that pulping separates elementary fibers from unpulped fiber bundles and beating mechanically changes the already pulped fibers. The text of the Snyder reference is cited by the Office communication is in complete

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agreement with this usage as it teaches “unbeaten fibers” and uses “sisal pulp” as an example of these unbeaten fibers. There is NO teaching, suggestion or disclosure in the Snyder reference of the use of UNPULPED fiber bundles as recited in Applicant’s claims. The 4/17/2003 Office communication does not assert that the Holm reference teaches or suggests the use of UNPULPED fiber bundles. In fact, pending claim 5 incorporates language suggested by the Examiner to distinguish over the Holm reference.

As stated in MPEP §2143, to establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As discussed above, Applicant’s pending claims 2-10 and 23 each requires unpulped fiber bundles. As also discussed above, neither of the cited references teaches or suggest the use of unpulped fiber bundles. Applicant respectfully traverses the present rejection of claims 2-10 and 23 and requests that the Examiner explains where the cited references teach or suggest the use of “unpulped fiber bundles”. Applicant’s claims 2-10 and 23 are not taught or suggested by the cited references and are patentable for at least these reasons.

In summary, Applicants have addressed each of the rejections within the present Office communication. It is believed the application now stands in condition for allowance, and prompt favorable action thereon is respectfully solicited.

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The Examiner is invited to telephone Applicant(s)' attorney if it is deemed that a telephone conversation will hasten prosecution of this application.

Respectfully submitted,

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